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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

YEE, DEBORAH

ART UNIT PAPER NUMBER

1742

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,039

Applicant(s)

THOMSON ET AL.

Examiner

Deborah Yee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3-10-05;9-08-05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 19 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 9, 2006.

Claim Objections

2. Claim 6 is objected to because of the following informalities: There is a typo-error on last two lines of claim 6 which recites, "from about 90 to about 98 percent to about percent of the thickness". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 to 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowther et al publication (hereinafter Crowther) submitted by applicant in IDS dated March 10, 2005.
5. Similar to the present invention, Crowther in paragraph 2.1 on page 637 discloses a thin slab direct rolling process for V-N micro-alloyed steels comprising the steps of: casting steel to produce 50 mm thick ingots; directly hot charging ingots in an

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equalization furnace at 1050C, 1100C or 1200C for 30 to 60 minutes ; ingots, which are at a temperature above recrystallization temperature and above precipitation temperature, are then subjected to rolling in a reverse rolling mill to produce 7 mm strips with 5 rolling passes at a total reduction of 86%; and subjected cooling and coiling to form ferrite microstructure. Note that after the 4th pass, the strips were held until a temperature of 870C was reached with a holding time of 25 to 40 second to produce a fine and uniform prior austenite grain structure.

6. Even though present invention requires 2 rolling apparatus as recited by one or more of the claims whereas Crowther teaches one reverse rolling mill, such would not be a patentable difference since it would be a matter of choice well within the skill of the artisan to select type of rolling apparatus to apply to process ,which is productive of no new and unexpected results.

7. Even though prior art does not teach the reduction rate for the second rolling apparatus to be less than the reduction rate for the first rolling apparatus as recited by step (g), such would not be a patentable difference since it would obvious and a matter of routine optimization well within the skill of the artisan to select higher reduction rate during the initial passes because steel is at a higher temperature and has greater workability

8. Crowther disclose as-cast steel product at 50 mm thickness, and is within the recited ranges of 30 to 200 mm and 50 to 80 mm recited by claims 3 and 4, respectively.

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9. Crowther process discloses a total reduction of 86% which suggest the reduction rates recited by claims 5 and 6.

10. Even though Crowther process produces a steel having a thickness of 7mm whereas present invention recites a finished hot rolled product at 1 to 6 mm recited by claim 7 and 1 to 2 mm recited by claim 8, such would not be a patentable difference since it would be a matter choice well within the skill of the artisan to select thickness.

11. Prior art teaches a micro-alloyed V-N steel similar in composition to the present invention; and hence would be expected to have a precipitation temperature at 1050C as recited by claim 9 .

12. Crowther in Table 5 on page 641 produces a steel having a yield strength of 570MPa, and is within the claimed range of at least 550MPa recited by claims 10 and 11.

13. Prior art teaches a flat rolled product produced in substantially the same manner as claimed by applicants and hence would be expected to have the n-value property recited by claim 12.

14. In regard to claim 17, Crowther teaches in paragraph 2.1 on page 637 that steel is held at recrystallization temperature for 25 to 40 seconds (within recited range of 15 to 25 seconds) to complete recrystallization. Grain size of 100 to 400 microns would be expected since process steps are closely met, and in absence of proof to the contrary.

15. In regard to claim 18, Crowther begins hot rolling at 1050 or 1100C and is within the recited range of 1020 to 1150C.

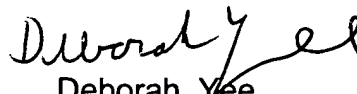
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16. The unapplied references have been cited to further depict the state of the art in low-alloy steel strip.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-27211253. The examiner can normally be reached on monday-friday 6:00am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Deborah Yee
Primary Examiner
Art Unit 1742

dy